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NASJRB WILLOW GROVE
5090.3a

VALIDATED DATA PACKAGE, FA22350, FA22455, FA22456, JB88752, JB88929, NAS
WILLOW GROVE PA
2/23/2015
RESOLUTION CONSULTANTS



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Data Validation Report

Project: NAS JRB Willow Grove, PA

Laboratory: Accutest Laboratories

Job Numbers: FA22350, FA22455, FA22456, JB88752 and JB88929

Analyses/Method: Select PFCs by Liquid Chromatography/Mass Spectrometry/Mass Spectrometry (LC/MS/MS)/ EPA Method 537 modified and TOC by Lloyd Kahn

Validation Level: Limited

Resolution Consultants 60276503.SI.RP
 Project Number: _____

Prepared by: Paula DiMattei/Resolution Consultants Completed on: 3/25/2015

Reviewed by: Lori Herberich /Resolution Consultants

File Name: Willow Grove FA22350_FA22455_FA22456_JB88752_JB88929_PFCs-TOC

SUMMARY

The samples listed below were collected by Resolution Consultants from the NAS JRB Willow Grove, PA site on February 23-25 and 27, 2015.

SDG	Sample ID	Matrix/Sample Type
FA22350	EB-022315	Equipment blank
	SED-09_02232015	Sediment
	SED-14_02232015	Sediment
	SED-15_02232015	Sediment
	SED-16_02232015	Sediment
	SED-25_02232015	Sediment
	SW-08_02232015	Surface Water
	SW-09_02232015	Surface Water
	SW-100_02232015	Surface Water
	SW-13_02232015	Surface Water
	SW-14_02232015	Surface Water
	SW-15_02232015	Surface Water
	SW-16_02232015	Surface Water
	SW-25_02232015	Surface Water
	SW-27_02232015	Surface Water
	SW-7_02232015	Surface Water
FA22455	EB-022415	Equipment blank
	EB-022515	Equipment blank

SDG	Sample ID	Matrix/Sample Type
	SED-17_02242015	Sediment
	SED-18_02242015	Sediment
	SED-19_02242015	Sediment
	SED-19-DUP_02242015	Field duplicate of SED-19
	SED-22_02252015	Sediment
	SED-22B_02252015	Sediment
	SED-44_02252015	Sediment
	SW-01_02252015	Surface Water
	SW-02_02252015	Surface Water
	SW-03_02252015	Surface Water
	SW-04_02252015	Surface Water
	SW-06_02252015	Surface Water
	SW-17_02242015	Surface Water
	SW-18_02242015	Surface Water
	SW-19_02242015	Surface Water
	SW-20_02242015	Surface Water
	SW-22_02252015	Surface Water
	SW-22A_02252015	Surface Water
	SW-22B_02252015	Surface Water
	SW-28_02242015	Surface Water
	SW-29_02242015	Surface Water
	SW-33_02242015	Surface Water
	SW-34_02242015	Surface Water
	SW-36_02242015	Surface Water
	SW-37_02242015	Surface Water
	SW-42_02242015	Surface Water
	SW-43_02252015	Surface Water
	SW-44_02252015	Surface Water
	FB-022715	Field blank
FA22456	SW-200_02272015	Surface Water
	SW-26_02272015	Surface Water
	SW-39_02272015	Surface Water
	SW-40_02272015	Surface Water
JB88752	SED-14_02232015	Sediment
	SED-25_02232015	Sediment
JB88929	SED-22_02252015	Sediment
	SED-22B_02252015	Sediment
	SED-44_02252015	Sediment

Data validation activities were conducted with reference to:

- Accutest Laboratories SOP: Analysis of Perfluorinated Alkyl Acids by LC/MS/MS; MS 014.1, Rev. Date: 05/14
- Determination of Total Organic Carbon in Sediment [Lloyd Kahn Method] (July 1988);
- USEPA Contract Laboratory Program National Functional Guidelines for Chlorinated Dioxin/Furan Data review (USEPA, September 2011);
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008); and
- Quality Systems Manual (QSM) for Environmental Laboratories, Version 4.2 (DoD, October 2010)

In the absence of method-specific information, laboratory quality control (QC) limits, project-specific requirements and/or professional judgment were used as appropriate.

REVIEW ELEMENTS

The data were evaluated based on the following review elements (where applicable to the method):

- ✓ Data completeness (chain-of-custody (COC)/sample integrity)
- ✓ Holding times/sample preservation
- ✓ Initial calibration/initial and continuing calibration verification
- ✓ Laboratory method blanks/equipment blanks/field blanks
- ✓ Surrogate recoveries
- ✗ Matrix spike (MS)/matrix spike duplicate (MSD)/matrix duplicate (MD) results
- ✓ Laboratory control sample (LCS) results
- ✓ Field duplicate results
- ✓ Internal standard results
- ✓ Sample results/reporting issues

The symbol (✓) indicates that no validation qualifiers were applied based on this parameter. NA indicates that the parameter was not included as part of this data set or was not applicable to this validation and therefore not reviewed. The symbol (✗) indicates that a QC nonconformance resulted in the qualification of data. Any QC nonconformance that resulted in the qualification of data is discussed below. In addition, nonconformances or other issues that were noted during validation, but did not result in qualification of data, may be discussed for informational purposes only.

The data appear valid as reported and may be used for decision making purposes. Select data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below). Qualified sample results are presented in Table 1.

RESULTS

Data Completeness/Sample Integrity

The data package was reviewed and found to meet acceptance criteria for completeness:

- The COCs were reviewed for completeness of information relevant to the samples and requested analyses, and for signatures indicating transfer of sample custody.

- The laboratory sample login sheet(s) were reviewed for issues potentially affecting sample integrity, including the condition of sample containers upon receipt at the laboratory.
- Completeness of analyses was verified by comparing the reported results to the COC requests.

Sample JB88929-2 was identified on the COC as SED-15. AECOM requested that the sample ID be corrected to SED-22B after the sample was received at the laboratory. No other discrepancies were noted.

Holding Times/Sample Preservation

Sample preservation and preparation/analysis holding times were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Initial Calibration/Initial and Continuing Calibration Verification

Calibration data were reviewed for conformance with the QC acceptance criteria to ensure that:

- the initial calibration (ICAL) percent relative standard deviation (%RSD) or correlation coefficient (r)/coefficient of determination (r^2) method acceptance criteria were met;
- the initial calibration verification standard (ICV) percent recovery acceptance criteria were met; and
- the continuing calibration verification standard (CCV) frequency and method percent recovery criteria were met.

The QC acceptance criteria were met.

Laboratory Method Blanks/Equipment Blanks/Field Blanks

Laboratory method blanks, equipment rinsate blanks, and field blanks are evaluated as to whether there are contaminants detected above the detection limit (DL). Target compounds were not detected in the laboratory method blanks, equipment blanks, and field blanks associated with the samples in this data set or qualification of the data was not required based on the presence of blank contamination.

Surrogate Recoveries

The surrogate recoveries (%Rs) were reviewed for conformance with the QC acceptance criteria. All criteria were met or qualification of the data was not required.

MS/MSD/MD Results

The MS/MSD/MD %Rs and/or relative percent differences (RPDs) were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met with the following exceptions.

Sample ID	Compound	MS % Recovery	MSD % Recovery	Lower Limit	Upper Limit
SW-33_02242015	PERFLUOROOCETANESULFONIC ACID (PFOS)	152	147	70	130
SW-33_02242015	PERFLUOROHEXANESULFONIC ACID (PFHxS)	137	134	70	130

Data qualification to the compounds associated with the specific MS/MSD nonconformances was as follows:

Actions: (Based on NFG 2008 and Resolution Consultants professional judgment)

Criteria	Action	
	Detected Compounds	Nondetected Compounds
%R > UL	J	No qualification
$10\% \leq \%R < LL^*$	J	UJ
%R < 10%*	J	R
%RPD > UL	J	No qualification
* NFG 2008 does not list a minimum limit. Based on Resolution Consultants professional judgment, a minimum limit of 10% was used.		

Qualified sample results are shown in Table 1.

LCS Results

The LCS %Rs were reviewed for conformance. All QC acceptance criteria were met.

Field Duplicate Results

Field duplicate RPDs were reviewed for conformance with the Resolution Consultants QC criteria of $\leq 50\%$ for solid matrices and $\leq 30\%$ for aqueous matrices. These criteria apply if both results were greater than five times the limit of quantitation (LOQ). All criteria were met.

Internal Standard Results

The internal standard (IS) results were reviewed for conformance with the QC acceptance criteria. All QC acceptance criteria were met.

Sample Results/Reporting Issues

If applicable, compounds detected at concentrations less than the limit of quantitation (LOQ) but greater than the detection limit (DL) were qualified by the laboratory as estimated (J). This "J" qualifier was retained during data validation.

QUALIFICATION ACTIONS

Sample results qualified as a result of validation actions are summarized in Table 1. All actions are described above.

ATTACHMENTS

Attachment A: Qualifier Codes and Explanations

Attachment B: Reason Codes and Explanations

Table 1 - Data Validation Summary of Qualified Data

Sample ID	Matrix	Compound	Result	LOD	LOQ	Units	Validation Qualifiers	Validation Reason
SW-33_02242015	WS	PERFLUOROOCTANESULFONIC ACID (PFOS)	0.199	0.016	0.020	UG/L	J	m
SW-33_02242015	WS	PERFLUOROHEXANESULFONIC ACID (PFHxS)	0.0998	0.016	0.020	UG/L	J	m

Attachment A
Qualifier Codes and Explanations

Qualifier	Explanation
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual quantitation limit necessary to accurately and precisely measure the analyte in the sample.
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
R	The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Attachment B**Reason Codes and Explanations**

Reason Code	Explanation
be	Equipment blank contamination
bf	Field blank contamination
bl	Laboratory blank contamination
c	Calibration issue
d	Reporting limit raised due to chromatographic interference
fd	Field duplicate RPDs
h	Holding times
i	Internal standard areas
k	Estimated Maximum Possible Concentration (EMPC)
l	LCS or OPR recoveries
lc	Labeled compound recovery
ld	Laboratory duplicate RPDs
lp	Laboratory control sample/laboratory control sample duplicate RPDs
m	Matrix spike recovery
md	Matrix spike/matrix spike duplicate RPDs
nb	Negative laboratory blank contamination
p	Chemical preservation issue
r	Dual column RPD
q	Quantitation issue
s	Surrogate recovery
su	Ion suppression
t	Temperature preservation issue
x	Percent solids
y	Serial dilution results
z	ICS results